I claim:

1. A method for inspecting a BGA joint, comprising the steps of:

finding a location of the BGA joint;

improving the location using a fine locator;

measuring, in a slice image, a plurality of diameters through the BGA joint at predetermined angles; and

applying a rule to compare the measured diameters to an expected diameter.

2. A method for inspecting a BGA joint as claimed in claim 1, wherein the plurality of diameters are measured at the located center of the BGA joint.

3. A method for inspecting a BGA joint as claimed in claim 1, wherein the step of finding the location of the BGA joint comprises applying a centroid-based rough locator to the slice image.

4. A method for inspecting a BGA joint as claimed in claim 1, wherein the fine locator comprises:

applying a plurality of locator windows over the BGA joint;

locating two ball edges within a locator window; and

determining a midpoint between the two ball edges.

5. A method for inspecting a BGA joint as claimed in claim 4, wherein locating two ball edges within a locator window comprises applying a derivative edge finder on either side of the BGA joint.

6. A method for inspecting a BGA joint as claimed in claim 5, wherein the step of locating two ball edges within the locator window is repeated for each of the plurality of locator windows.

7. A method for inspecting a BGA joint as claimed in claim 1, wherein the rule comprises calculating a sum in the form of:

$$\sum_{i=1}^{N}(D-d[i])^2$$

where D is an expected diameter and d[i] are the measured diameters.

8. A method for inspecting a BGA joint as claimed in claim 7, wherein the rule further comprises comparing the sum to a threshold.

9. A method for inspecting a region of interest, comprising the steps of:

acquiring data corresponding to a number of horizontal slice images extending through an object of interest; and

locating a best horizontal slice image from the number of horizontal slice images, the locating step comprising:

computing, for at least two of the horizontal slice images,

an amount of solder within each of the at least two horizontal slice images; and

reviewing a distribution of the computed amounts of solder.